REMARKS

Claims 1 to 40 are pending in the application. Claims 6, 7, 9, 16, and 24 to 29 stand rejected under 35 U.S.C. §112, second paragraph. Claims 1 to 5, 14, 17, and 35 stand rejected under 35 U.S.C. §102(b) as being anticipated by Horiguchi et al. (U.S. Patent 3,563,931). Claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37 stand rejected under 35 U.S.C. §102(e) as being anticipated by Palumbo (U.S. Patent 6,916,367). Claims 23 to 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Palumbo in view of EP 0 303 987. Claims 23 to 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Palumbo in view of Miyabayashi (U.S. Patent 6,590,012). Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Palumbo in view of Ma et al. (U.S. Patent 5,648,405). Claims 33 and 34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Palumbo in view of British Patent 2,344,825. Claims 1 to 7, 10, 12 to 18, 21, 22, and 30 to 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over British Patent 2,344,825 in view of Parker (U.S. Patent 4,963,188). Claims 8 and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over British Patent 2,344,825 in view of Parker and further in view of either Banning et al. '541 (U.S. Patent 6,764,541), Banning et al. '812 (U.S. Patent 7,094,812), or Banning et al. '267 (U.S. Patent 6,790,267). Claims 23 to 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over British Patent 2,344,825 in view of Parker and further in view of EP 0 303 987. Claims 23 to 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over British Patent 2,344,825 in view of Parker and further in view of Miyabayashi.

Applicants initially direct the Examiner's attention to claim 40, which was neither rejected nor allowed in this Office Action, and request a clarification of the status of this claim.

Regarding the rejection of claims 6 and 7 under §112, the Examiner has stated that the scope of the claims is confusing because it is not clear what type of molecular weight is being claimed. Applicants do not agree with this position, since the scope of the claims is always to be determined in light of the specification. Nevertheless, to facilitate prosecution, Applicants have amended these claims as indicated to be consistent with the specification at, for example, page 21, lines 6 to 13. These amendments do not narrow the scope of the claims.

Applicants have also amended claims 9 and 16 to modify the incorrect Markush-type language to which the Examiner has objected. These amendments do not narrow the scope of the claims.

The Examiner has stated that claim 24 recites that the antioxidant or UV stabilizer molecule has at least one "isocyanate-reactive" hydroxyl group and/or at least one "isocyanate-reactive" primary or secondary amine group, and that given that the antioxidant or UV stabilizer is covalently bonded to the anhydride copolymer, which does not appear to comprise an isocyanate group, it is not clear why the antioxidant or UV stabilizer requires an "isocyanate-reactive" moiety, and clarification is requested. Similar concerns have arisen with respect to claim 26.

Applicants are assuming that the Examiner is referring to claims 25 and 27; claim 25 recites "(a)n ink according to claim 24 wherein the antioxidant or UV stabilizer moiety is covalently bonded to the anhydride copolymer by reacting an anhydride copolymer with an antioxidant or UV stabilizer molecule having thereon (A) at least one isocyanate-reactive hydroxyl group and/or (B) at least one isocyanate-reactive primary or secondary amino group", and claim 27 similarly recites isocyanate-reactive groups.

The specification at, for example, pages 112 and 113 shows schematically the reaction between the anhydride copolymer and the isocyanate-reactive groups. Applicants have chosen the term "isocyanate-reactive groups" here because it is well-understood in the art and because isocyanate-reactive hydroxyl groups, amino groups, and thiol groups will also react with the anhydride groups of the copolymer. It is well-established law that an inventor may be his own lexicographer. See, e.g., Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 228 U.S.P.Q. (BNA) 90 (Fed. Cir. 1986); W. L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. (BNA) 303 (Fed. Cir. 1983); and Fromson v. Advance Offset Plate, Inc., 720 F.2d 1565, 219 U.S.P.Q. (BNA) 1137 (Fed. Cir. 1983). Since the specification clearly shows and defines exactly what is meant by this term, and since it is very well known in the art, Applicants are of the position that those of ordinary skill in the art would have no difficulty in understanding what Applicants intend as their invention, and accordingly respectfully request reconsideration and withdrawal of this ground for rejection.

Applicants respectfully traverse the rejections of the claims under §§102 and 103.

The Examiner has rejected claims 1 to 5, 14, 17, and 35 stand rejected under 35 U.S.C. §102(b) as being anticipated by Horiguchi et al. Horiguchi et al. discloses a method of making a chromogen-bonded polymer which comprises the steps of diazotizing a chromogen-containing amino compound in aqueous medium containing hydrochloric acid in a quantity which exceeds its theoretically required molar quantity of hydrochloric acid by at least 10 mols per one amino radical to produce the diazotized product of the chromogen; stabilizing the diazotized product with a stabilizer to produce the stabilized diazonium or diazo product of the chromogen; mixing the resulting stabilized product with an addition polymerizable monomer; and polymerizing the monomer using the stabilized diazonium or diazo product as an initiator for the polymerization of the monomer to form the chromogen-bonded polymer.

Applicants point out that the Examiner has pointed to nothing in this reference that teaches or suggests an ink having a viscosity at about 25°C of no more than about 10 centipoise. To anticipate a claim under 35 U.S.C. §102, a prior art reference must disclose each and every element claimed. See, e.g., Leinoff v. Louis Milona & Sons, Inc., 220 U.S.P.Q. (BNA) 845 (Fed. Cir. 1984); Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. (BNA) 193 (Fed. Cir. 1983). Since Horiguchi et al. fails to teach or suggest the instant invention as recited in claims 1 to 5, 14, 17, and 35, Applicants are of the position that these claims are patentable with respect to the teachings of this reference.

The Examiner has rejected claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37 under §102 as being anticipated by Palumbo. Palumbo discloses processes for preparing modified pigments. In one embodiment, the process comprises the step of combining, in any order, a pigment having attached an electrophilic group and a thiol reagent comprising at least one -SH group and at least two ionic or ionizable groups. In a second embodiment, the process comprises the step of combining, in any order, a pigment having attached an electrophilic group and a thiopolymer comprising at least one -H group. Modified pigments are also described.

Palumbo is directed to modified pigment particles. In contrast, the materials claimed herein are ink compositions containing colorants comprising an anhydride-based copolymer having at least one chromogen covalently bonded thereto and at least one ester, amide, imide, or thioester group covalently bonded thereto. The Examiner has apparently analogized the pigments in Palumbo to the chromogens in the instant application. This analogy, however, is not apt. Pigments are particles. In contrast, as defined in the instant specification at page 15, lines 8 to 15, chromogens are both groups of atoms that impart color to a molecule and molecules that are colored. The chromogen moieties attached to the anhydride copolymers recited in the instant claims are on the atomic and molecular level, not on the particulate level.

In addition, the Examiner has not pointed to anything in Palumbo that teaches anhydride-based copolymers having, in addition to a chromogen covalently bonded thereto, at least one ester, amide, imide, or thioester group covalently bonded thereto. While Palumbo does teach the placement of ester and amide groups on the monomer groups of the polymers disclosed therein, the Examiner has pointed to nothing in the teachings of this reference to suggest that not all of these groups are converted to or used for the purpose of spacer groups for the pigments attached to the polymer.

To anticipate a claim under 35 U.S.C. §102, a prior art reference must disclose each and every element claimed. See, e.g., Leinoff v. Louis Milona & Sons, Inc., 220 U.S.P.Q. (BNA) 845 (Fed. Cir. 1984); Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. (BNA) 193 (Fed. Cir. 1983). Since Palumbo fails to teach or suggest the instant invention as recited in claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37, Applicants are of the position that these claims are patentable with respect to the teachings of this reference.

The Examiner has also rejected claims 23 to 29 under §103 as being unpatentable over Palumbo in view of EP 0 303 987. EP 0 303 987 discloses polymer bound hindered amine light stabilizers prepared by reacting hindered amine light stabilizers containing reactive hydrazide functionalities with anhydride containing polymers or copolymers. The reactions may be carried out in an inert solvent or in a melt blending step. The polymer bound hindered amine light stabilizers are useful alone or may also be used to stabilize other polymers, copolymers or polymer blends against the deleterious effects of heat and/or light.

Applicants are of the position that claims 23 to 29 are patentable for the reasons set forth hereinabove with respect to the rejection of claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37 under §102 as being anticipated by Palumbo. In addition, Applicants are of the position that one of ordinary skill in the art would have no particular reason to combine the teachings of these two references to arrive at the instantly claimed invention. The Examiner has pointed to nothing in the teachings of EP 0 303 987 that would teach or suggest to one of ordinary skill in the ink art that the polymers disclosed therein would be suitable for use in ink compositions. Accordingly, Applicants are of the position that claims 23 to 29 are patentable with respect to the teachings of these references.

The Examiner has also rejected claims 23 to 27 under §103 as being unpatentable over Palumbo in view of Miyabayashi. Miyabayashi discloses that addition of a polymer having an ultraviolet absorbing capacity and/or a light stabilizing capability and, in addition, a film-forming property as a fine particle to an ink composition can improve the lightfastness of the ink composition. The use of an ink composition comprising a colorant, water, a water-soluble organic solvent, and a fine particle of a polymer, the polymer constituting the fine particle having a film-forming property and, at the same time, an ultraviolet absorbing capacity and/or a light stabilizing capability, can realize a lightfast printed image.

Applicants are of the position that claims 23 to 27 are patentable for the reasons set forth hereinabove with respect to the rejection of claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37 under §102 as being anticipated by Palumbo. In addition, Applicants are of the position that one of ordinary skill in the art would have no particular reason to combine the teachings of these two references to arrive at the instantly claimed invention. Miyabayashi teaches the use of a colorant in the ink compositions disclosed therein. One of ordinary skill in the art would not be led to combine the teachings of these references or be motivated to view them in combination absent the benefit of the teachings of the present application. The Examiner appears to have considered various portions of the references cited, in each instance viewing the cited portion in isolation from the context of the entire reference, and combined these isolated portions to arrive at the present invention with the benefit of hindsight. Using hindsight or applying the benefit of the teachings of the present application when determining obviousness, however, is impermissible; the references applied must be reviewed without hindsight, must be reviewed as a whole, and must suggest the desirability of combining the references. Lindemann Maschinenfabrik v. American Hoist & Derrick Co., 221 U.S.P.Q. 481 (Fed. Cir. 1984). Accordingly, Applicants are of the position that claims 23 to 27 are patentable with respect to the teachings of these references.

The Examiner has also rejected claim 32 under §103 as being unpatentable over Palumbo in view of Ma et al. Ma et al. discloses aqueous ink jet ink compositions comprising an aqueous carrier medium, a colorant, such as a dye or a pigment, and a polyampholyte containing at least one carboxylic acid group and at least one amine group have improved dispersion stability and flexibility in manufacturing.

Applicants are of the position that claim 32 is patentable for the reasons set forth hereinabove with respect to the rejection of claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37 under §102 as being anticipated by Palumbo.

The Examiner has also rejected claims 33 and 34 under §103 as being unpatentable over Palumbo in view of British Patent 2,344,825. British Patent 2,344,825 discloses an ink having a viscosity less than 20 centipoise at 20°C comprising (i) a coloured polymer obtained by colouration of a polymer having anhydride groups and (ii) a liquid medium. The polymer is obtained from the polymerisation of maleic anhydride monomers and the liquid medium comprises water and an organic solvent. The ink is suitable for use in jet printing.

Applicants have cancelled claim 33 and incorporated it into claim 1. Applicants are of the position that claim 34 is patentable for the reasons set forth hereinabove with respect to the rejection of claims 1 to 7, 12 to 14, 19 to 22, and 35 to 37 under §102 as being anticipated by Palumbo.

The Examiner has rejected claims 1 to 7, 10, 12 to 18, 21, 22, and 30 to 39 under §103 as being unpatentable over British Patent 2,344,825 in view of Parker. Parker discloses water-based ink compositions, suitable as flexographic and gravure inks, which incorporate high molecular weight resin acid-maleic anhydride polymers. The ink compositions comprise a coloring agent and a resin vehicle which comprises an aqueous solution of the reaction product of rosin and maleic anhydride in the presence of a free radical polymerization initiator.

The Examiner has stated that nothing in British Patent 2,344,825 teaches anhydride-based copolymers having, in addition to a chromogen covalently bonded thereto, at least one ester, amide, imide, or thioester group covalently bonded thereto. While British Patent

2,344,825 does teach the placement of amide groups on the monomer groups of the polymers disclosed therein, nothing in the teachings of this reference suggests that not all of these groups are converted to or used for the purpose of spacer groups for the pigments attached to the polymer. The Examiner is of the position that it would have been obvious to place both at least one covalently bonded ester, amide, imide, or thioester group and at least one covalently bonded chromogen on an anhydride-based copolymer, thereby arriving at the instantly claimed invention.

Applicants are of the position that one of ordinary skill in the art would have no particular reason to combine the teachings of these two references to arrive at the instantly claimed invention. Parker teaches the use of a colorant in the ink compositions disclosed therein. One of ordinary skill in the art would not be led to combine the teachings of these references or be motivated to view them in combination absent the benefit of the teachings of the present application. The Examiner appears to have considered various portions of the references cited, in each instance viewing the cited portion in isolation from the context of the entire reference, and combined these isolated portions to arrive at the present invention with the benefit of hindsight. Using hindsight or applying the benefit of the teachings of the present application when determining obviousness, however, is impermissible; the references applied must be reviewed without hindsight, must be reviewed as a whole, and must suggest the desirability of combining the references. Lindemann Maschinenfabrik v. American Hoist & Derrick Co., 221 U.S.P.Q. 481 (Fed. Cir. 1984). Accordingly, Applicants are of the position that claims 1 to 7, 10, 12 to 18, 21, 22, and 30 to 39 are patentable with respect to the teachings of these references.

The Examiner has also rejected claims 8 and 11 under §103 as being unpatentable over British Patent 2,344,825 in view of Parker and further in view of either Banning et al. '541, Banning et al. '812, or Banning et al. '267. These three Banning patents are commonly owned with the instant application. Applicants have attached a Statement of Common Ownership hereto which removes these three patents as prior art, and accordingly respectfully request reconsideration and withdrawal of this ground for rejection.

The Examiner has also rejected claims 23 to 29 under §103 as being unpatentable over British Patent 2,344,825 in view of Parker and further in view of EP 0 303 987.

Applicants are of the position that claims 23 to 29 are patentable for the reasons set forth hereinabove with respect to the rejection of claims 1 to 7, 10, 12 to 18, 21, 22, and 30 to 39 under §103 as being unpatentable over British Patent 2,344,825 in view of Parker. In addition, Applicants are of the position that one of ordinary skill in the art would have no particular reason to combine the teachings of these two references to arrive at the instantly claimed invention. The Examiner has pointed to nothing in the teachings of EP 0 303 987 that would teach or suggest to one of ordinary skill in the ink art that the polymers disclosed therein would be suitable for use in ink compositions. Accordingly, Applicants are of the position that claims 23 to 29 are patentable with respect to the teachings of these references.

The Examiner has also rejected claims 23 to 27 under §103 as being unpatentable over British Patent 2,344,825 in view of Parker and further in view of Miyabayashi.

Applicants are of the position that claims 23 to 27 are patentable for the reasons set forth hereinabove with respect to the rejection of claims 1 to 7, 10, 12 to 18, 21, 22, and 30 to 39 under §103 as being unpatentable over British Patent 2,344,825 in view of Parker. In addition, Applicants are of the position that one of ordinary skill in the art would have no particular reason to combine the teachings of these two references to arrive at the instantly claimed invention. Miyabayashi teaches the use of a colorant in the ink compositions disclosed therein. One of ordinary skill in the art would not be led to combine the teachings of these references or be motivated to view them in combination absent the benefit of the teachings of the present application. The Examiner appears to have considered various portions of the references cited, in each instance viewing the cited portion in isolation from the context of the entire reference, and combined these isolated portions to arrive at the present invention with the benefit of hindsight. Using hindsight or applying the benefit of the teachings of the present application when determining obviousness, however, is impermissible; the references applied must be reviewed without hindsight, must be reviewed as a whole, and must suggest the desirability of combining the references. Lindemann Maschinenfabrik v. American Hoist & Derrick Co., 221 U.S.P.Q. 481 (Fed. Cir. 1984). Accordingly, Applicants are of the position that claims 23 to 27 are patentable with respect to the teachings of these references.

Applicants believe that the foregoing amendments and distinctions place the claims in condition for allowance, and accordingly respectfully request reconsideration and withdrawal of all grounds for rejection.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is hereby authorized to call Applicant(s) attorney, Judith L. Byorick, at Telephone Number (585) 423-4564, Rochester, New York.

Respectfully submitted,

/Judith L. Byorick, Reg. # 32,606/

Judith L. Byorick
Attorney for Applicant(s)
Registration No. 32,606
(585) 423-4564

JLB/cw
February 5, 2007

Xerox Corporation
Xerox Square 20A
Rochester, New York 14644

STATEMENT OF COMMON OWNERSHIP

Applicants' and Assignee Xerox Corporation's representative hereby states that the invention claimed in the instant application and the inventions claimed in U.S. Patent 6,764,541, U.S. Patent 7,094,812, and U.S. Patent 6,790,267 were commonly owned and subject to an obligation of assignment to the same person at the time the later invention was made. More specifically, the inventors named in U.S. Patent 6,764,541, U.S. Patent 7,094,812, and U.S. Patent 6,790,267 and the inventors named in the instant application were employed by Xerox Corporation at the time the invention of the instant application was made, that the inventors named in U.S. Patent 6,764,541, U.S. Patent 7,094,812, and U.S. Patent 6,790,267, at said time, either had formally assigned their interests in the inventions claimed in U.S. Patent 6,764,541, U.S. Patent 7,094,812, and U.S. Patent 6,790,267 to Xerox Corporation or were under obligation by virtue of an employment agreement to assign to Xerox Corporation the inventions claimed in U.S. Patent 6,764,541, U.S. Patent 7,094,812, and U.S. Patent 6,790,267, and that the inventors of the instant application were, at said time, under obligation by virtue of employment agreements to assign to Xerox Corporation the invention of the instant application.